

Amendments to the Claims

Listing of Claims:

Original Claims 1-4 (canceled).

Amended Claims 1-4 (canceled).

Claim 5 (new). A method for switching a semiconductor power switch, which comprises the following steps:

providing a semiconductor power switch with a switching path having a resistance and a control input ;

controlling the resistance of the switching path of the semiconductor power switch via the control input by at least one of a control voltage and a control current in dependence on a chip temperature to maintain the chip temperature of the power switch at a predetermined setpoint temperature, and thereby increasing the resistance of the switching path when the setpoint temperature is reached.

Claim 6 (new). A device for driving a semiconductor power switch connected between two energy storage devices in a wiring system of a vehicle equipped with an integrated starter generator, comprising:

a semiconductor power switch having a switching path, and a control input for controlling said power switch with a control voltage V_{st} as a transfer gate to a non-conductive off-state or to a conductive on-state;

said power switch having two transistors or groups of transistors connected in series, wherein, in an off-state of said power switch, at least one of said two transistors or groups of transistors is blocked;

at least one diode assigned to each transistor or group of transistors for recording a chip temperature;

a charge pump for generating the control voltage, said charge pump driving said transistors of said power switch, in the conductive on-state, in each case only to such an extent that the chip temperature of each transistor of said power switch is maintained at a predetermined setpoint temperature; and

a temperature recording unit configured to compare the chip temperature with the predetermined setpoint temperature and to output an enable signal representing a result of the comparison to said charge pump, and wherein a resistance of said switching path is increased when the setpoint temperature is reached.

Claim 7 (new). The device according to claim 6, wherein said two transistors or group of transistors have interconnected gate terminals and interconnected source terminals, and which comprises a further transistor connected to said transfer gate, said further transistor having a collector-emitter path between said interconnected gate connections and said interconnected source connections of two transistors or groups of transistors, said further transistor being connected to receive an external signal for switching into a conductive state and for rapidly rendering said transfer gate non-conductive.

Claim 8 (new). The device according to claim 6, wherein:

said temperature recording unit including at least one series circuit, connected to poles of a voltage source, and comprising said respectively assigned diode, and a resistor for each transistor or group of transistors, wherein a node between said resistor and said diode, at which a voltage representing the chip temperature is present;

which further comprises a plurality of comparators each having a first input connected to a respective said node between said resistor and said diode, a second input receiving a nominal voltage representing the setpoint temperature, and an output;

said comparators performing a comparison between the voltage representing the chip temperature and the nominal voltage representing the setpoint temperature;

which further comprises a first logic element having an input connected to said outputs of said comparators, and an output;

a second logic element having a first input connected to said output of said first logic element, a second input connected to receive an ON/OFF signal, and an output outputting an output signal; and

said output of said second logic element connected to a gate oscillator of said charge pump as an enable signal.